



ELSEVIER



Available online at www.sciencedirect.com

ScienceDirect

Advances in Space Research 62 (2018) 662–682

ADVANCES IN
SPACE
RESEARCH

(a COSPAR publication)

www.elsevier.com/locate/asr

THESEUS: A key space mission concept for Multi-Messenger Astrophysics

G. Stratta^{a,b,l,*}, R. Ciolfi^{c,d}, L. Amati^b, E. Bozzo^e, G. Ghirlanda^f, E. Maiorano^b,
L. Nicastro^b, A. Rossi^b, S. Vinciguerra^g, F. Frontera^{h,b}, D. Götzⁱ, C. Guidorzi^h,
P. O'Brien^j, J.P. Osborne^j, N. Tanvir^k, M. Branchesi^{m,l}, E. Brocato^x, M.G. Dainotti^{n,b,aw},
M. De Pasquale^o, A. Grado^p, J. Greiner^q, F. Longo^{r,s}, U. Maio^{t,u}, D. Mereghetti^v,
R. Mignani^{v,w}, S. Piranomonte^x, L. Rezzolla^{y,z}, R. Salvaterra^v, R. Starling^j,
R. Willingale^j, M. Böer^{aa}, A. Bulgarelli^b, J. Caruana^{ab}, S. Colafrancesco^{ac}, M. Colpi^{ad},
S. Covino^f, P. D'Avanzo^f, V. D'Elia^{ae,x}, A. Drago^h, F. Fuschino^b, B. Gendre^{ag,ah,af},
R. Hudec^{ai,aj}, P. Jonker^{ak,al}, C. Labanti^b, D. Malesani^{am}, C.G. Mundell^{an}, E. Palazzi^b,
B. Patricelli^{ao}, M. Razzano^{ao}, R. Campana^b, P. Rosati^h, T. Rodic^{ap}, D. Szécsi^{aq,ar},
A. Stamerra^{ao}, M. van Putten^{as}, S. Vergani^{at,f}, B. Zhang^{au}, M. Bernardini^{av}

^a Università degli Studi di Urbino, Dipartimento Scienze Pure e Applicate, via S. Chiara 27, 61029, Urbino, Italy

^b INAF - OAS Bologna, via P. Gobetti 93/3, Bologna, Italy

^c INAF, Osservatorio Astronomico di Padova, Vicolo dell' Osservatorio 5, I-35122 Padova, Italy

^d INFN-TIFPA, Trento Institute for Fundamental Physics and Applications, via Sommarive 14, I-38123 Trento, Italy

^e Department of Astronomy, University of Geneva, ch. d'Ecogia 16, CH-1290 Versoix, Switzerland

^f INAF - Osservatorio astronomico di Brera, Via E. Bianchi 46, Merate, LC I-23807, Italy

^g Institute of Gravitational Wave Astronomy & School of Physics and Astronomy, University of Birmingham, Birmingham B15 2TT, United Kingdom

^h Department of Physics and Earth Sciences, University of Ferrara, Via Saragat 1, I-44122 Ferrara, Italy

ⁱ IRFU/Département d'Astrophysique, CEA, Université Paris-Saclay, F-91191 Gif-sur-Yvette, France

^j Department of Physics and Astronomy, University of Leicester, Leicester LE1 7RH, United Kingdom

^k University of Leicester, Department of Physics and Astronomy and Leicester Institute of Space & Earth Observation, University Road, Leicester LE1 7RH, United Kingdom

^l INFN, Sezione di Firenze, via G. Sansone 1, 50019 Sesto Fiorentino, Italy

^m Gran Sasso Science Institute (GSSI), Viale Francesco Crispi, 7, I-67100 L'Aquila, Italy

ⁿ Department of Physics & Astronomy, Stanford University, Via Pueblo Mall 382, Stanford, CA 94305-4060, USA

^o Department of Astronomy and Space Sciences, Istanbul University, Beyazit, 34119 Istanbul, Turkey

^p INAF-Capodimonte Astronomical observatory Naples, Via Moirariello 16, I-80131 Naples, Italy

^q Max Planck Institute for Astrophysics, Karl-Schwarzschild-Str. 1, 85741 Garching, Germany

^r Department of Physics, University of Trieste, via Valerio 2, Trieste, Italy

^s INFN Trieste, via Valerio 2, Trieste, Italy

^t Leibniz Institut for Astrophysics, An der Sternwarte 16, 14482 Potsdam, Germany

^u INAF-Osservatorio Astronomico di Trieste, via G. Tiepolo 11, 34131 Trieste, Italy

^v INAF - Istituto di Astrofisica Spaziale e Fisica Cosmica Milano, via E. Bassini 15, 20133 Milano, Italy

^w Janusz Gil Institute of Astronomy, University of Zielona Góra, Lubuska 2, 65-265 Zielona Góra, Poland

^x INAF-Osservatorio Astronomico di Roma, Via Frascati 33, I-00040 Monte Porzio Catone, Italy

^y Institut für Theoretische Physik, Johann Wolfgang Goethe-Universität, Max-von-Laue-Straße 1, 60438 Frankfurt, Germany

^z Frankfurt Institute for Advanced Studies, Ruth-Moufang-Straße 1, 60438 Frankfurt, Germany

^{aa} ARTEMIS, CNRS UMR 5270, Université Côte d'Azur, Observatoire de la Côte d'Azur, boulevard de l'Observatoire, CS 34229, F-06304 Nice Cedex 04, France

^{ab} Department of Physics & Institute of Space Sciences & Astronomy, University of Malta, Msida MSD 2080, Malta

^{ac} School of Physics, University of Witwatersrand, Private Bag 3, Wits-2050, Johannesburg, South Africa

* Corresponding author at: Università degli Studi di Urbino, Dipartimento Scienze Pure e Applicate, via S. Chiara 27, 61029, Urbino, Italy.
E-mail address: giulia.stratta@uniurb.it (G. Stratta).